

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



JAN 13 1942

EXPERIMENT STATION FILE

BULLETIN NO. 41

APRIL 1936

*Library*

# Can Live Stock Be Raised Profitably In Alabama?

*Second Edition*

*January 1940*

By

GEORGE W. CARVER, M. S. , D. Sc.

*Director*

EXPERIMENTAL STATION  
TUSKEGEE INSTITUTE

Tuskegee Institute, Alabama

TUSKEGEE INSTITUTE PRESS  
1940

## CAN LIVE STOCK BE RAISED PROFITABLY IN ALABAMA?

By G. W. Carver. M. S. Agr.; D. Sc.; Director

I am confident that no other time has been more favorable than the present for every farmer in Alabama to think seriously and constructively along this line, asking himself the following questions. (I feel equally sure that with the facts before him he will have little or no trouble in deciding what course to take.)

### QUESTIONS AND ANSWERS

#### No. 1. Is live stock necessary to successful farming?

Yes, absolutely. For centuries a good, well-cared for cow was recognized as half of any family's living, by:

- a. Furnishing all the milk, butter, cream, etc., the ordinary family can use, and if properly cared for a surplus can be had to sell.
- b. In addition to the above she should produce a calf every year.
- c. According to Brooks, this cow will consume 25 pounds of dry matter per day, which means as a by-product, 96 pounds of manure daily, having an average composition per 1,000 pounds as follows:

#### COMPOSITION OF 1,000 POUNDS OF FRESH EXCREMENTS

	Water	Nitrogen	Phosphoric	Alkalies
Animal	Pounds	Pounds	Acid Pounds	Pounds
Cow .....	840	3.0	2.5	1.0
Hog .....	800	6.0	4.5	5.0
Sheep .....	580	7.5	6.0	3.0
Horse .....	760	5.0	3.5	3.0
Hen .....	52.35	0.99	0.74	0.25
Duck .....	56.60	1.0	1.40	0.620
Goose .....	77.16	0.55	0.54	0.95

d. The above table shows that what is true of the cow is similarly true of other farm animals in varying proportions.

e. It is easy to see that our farm animals are great fertilizer factories, turning out the cheapest and best known product for the permanent building up of the soil. In addition to this farm yard manure there are also many thousands of tons of the finest fertilizers going to waste all over the South in the form of decaying leaves of the forest and the rich sediment of the swamp, known as "muck." Every idle moment should be put in gathering up these fertilizers. Make the mixture (compost) as follows:

1. Build pen to hold as much as you wish.
2. Spread two wagon-loads of muck and leaves over the bottom

of the pen; then one load of barn yard manure; build up in this way until the pen is full.

3. Put a rough shed over the pen sufficient to turn the bulk of the water from heavy rains, or mound up like a potato hill. This will prevent the excess of water from washing out the readily water soluble fertilizing constituents.

4. Put into this compost-heap all the wood ashes, old plaster, waste lime, rags, paper, and any matter that will decay quickly. Bones beaten up fine are also excellent. If you cannot get the barnyard manure make the compost without it. You will be agreeably surprised at the increased yield of crops of all kinds.

**Caution.** Do not allow this compost-heap to become hot enough for steam to rise from it ("fire fang"), as you will lose much of the value of the manure. If the pile begins to heat and give off a strong odor, tear down at once and scatter dry earth, leaves, or something of this kind amongst it.

5. Break land deep, if possible, (8 to 9 inches) and thoroughly; lay off rows with a middle-burster or two-horse plow; put compost in drill at the rate of 20 tons to the acre on medium land, and 25 tons to the acre on very poor land; plant directly on the fertilizer; cultivate in the usual manner.

### How to Build a Pasture

If a pasture is desired, I know of nothing better than the following methods submitted by our expert landscape gardner, D. A. Willisson, who is making both lawns and pastures, whenever the season permits:

"Plow the area with a two-horse plow. After plowing, apply pulverized limestone at the rate of 2000 lbs. per acre on soils deficient in lime, and disc land well. Harrow and drag until a firm seed bed is formed.

"The last of September or the middle of October the following mixture can be sown per acre:

- 5 lbs. of Dallas grass
- 1 lbs. of White Dutch clover
- 5 lbs. of Alsike clover
- 10 lbs. of Burr clover
- 10 lbs. of Lespedeza

"Fifty pounds of Italian Rye grass may be added if planted in the fall.

"The Lespedeza should be sown in the spring. The entire mixture could be sown in early spring. The Dallas grass should be sown separately and raked in; and just before rolling, the clovers should be sown.

### Hill Sides—Spring Planting

"The entire area should be cleaned of undergrowth, and plowed 8 to 10 inches deep. After plowing and before discing, the following should be added per acre:

2000 lbs. of lime stone (pulverized rock)

15 tons of manure, which will alternate with 800 lbs. of commercial fertilizer composed of:

4 % Nitrogen hot highly soluble

8 % Phosphate not highly soluble

10 % Potash

"The land should be thoroughly disced, harrowed, and dragged. Then lay off rows with a scooter plow 2 feet apart, and plant heavily Bermuda grass roots. Cover the grass roots well, and before rolling, sow the following per acre:

4 lbs. of White Clover

4 lbs. of Alsike Clover

10 lbs. of Lespedeza

"Five pounds of Dallas grass may be added to the hill side planting, but should be sown just before the rows are run for the Bermuda grass planting.

"The hill side planting should be done in the early spring in this locality, (March).

"In the fall, September or October, Italian Rye grass should be sown on the Bermuda sod at the rate of 60 lbs. per acre, and after sowing, a disc harrow should be run over the entire area once."

Well-stocked land, with the manures carefully saved and judiciously returned to the soil, will increase its productivity every year until the maximum is reached.

Experimental data bears us out in the assertion that Alabama, with its highly responsive soils, mild climate, and liberal rainfall, has almost unlimited possibilities in live stock and crop production. **No. 2. Can Alabama Produce Crops Suitable for Making the Best Kinds of Balanced Rations for Stock?**

Yes. Not only for stock, but for the human family as well, giving to each group the ideal amount of vigor and strength.

The following foodstuffs can be grown with ease in Alabama, and with good pasture, several packing plants should be furnished a yearly supply of produce to pack.

The table below gives the percentage composition of some of our leading grains, grasses, and forage plants with which every wide-awake, progressive farmer is familiar.

# COMPOSITION AND DIGESTIBILITY OF FODDER AND GRAIN ARTICLES

	No. of Analyses	Percentage Composition					Digestibility					
		Water	Ash	Pro-tein	Fiber	Nitro-gen free Ex-tract	Fat	Pro-tein	Fibre	Nitro-gen free ex-tract	Fat	
Alfalfa hay			6.46	17.98	33.62	39.28	2.66	(Water free substance)				
(Medicago sativa)												
Cotton Seed hulls		10.53		4.36	43.28	36.88	2.22					
Corn and cob meal	38	11.00	1.40	8.90	6.70	68.40	3.60	5.60	3.10	60.20	3.00	
Cracked corn	93	11.00	1.30	10.20	2.00	71.60	3.90					
Corn stover	44	40.00	3.90	4.60	20.60	30.1	0.80	1.70	13.20	17.80	0.50	
Cotton seed meal	319	7.00	6.60	45.30	6.30	24.60	10.20	38.10	2.20	19.20	9.60	
Cow pea meal	13	13.00	3.40	21.40	4.10	56.70	1.40					
(Vigna catjang)												
Emu clover			8.89	21.12	22.36	40.19	7.44	(Water free substance)				
(Medicago maculata)												
Bermuda grass			7.55	8.86	29.94	51.38	2.27	(Water free substance)				
(Cynodon dactylon)												
Peanut meal		6.28	3.75	47.03	3.50	29.61						
Peanut hulls		14.85	3.15	6.06	61.04	13.52	1.38					
Peanut hay	2	8.34	7.05	10.31	23.14	46.64	4.52	6.53	12.01	32.41	2.98	
Sweet Potatoes (Fresh)		68.34	1.12	1.93	1.11	26.76	0.74					
Sweet Potatoes (Dried)			3.61	6.25	3.26	34.15	2.37					
Sweet Clover hay			6.58	19.31	16.44	44.78	3.20					
(Melilotus alba)												



# COMPOSITION AND DIGESTIBILITY OF FODDER AND GRAIN ARTICLES

(Continued)

Smut grass hay (green) ( <i>Sporobolus indicus</i> )	74.02	2.01	3.13	5.20	14.39	1.25		
Velvet bean meal	11.20	3.20	22.94	3.84	52.00	6.82		
Velvet beans with pods	14.15	4.45	17.38	16.88	43.21	3.93		
Velvet bean hulls ground	14.90	6.05	4.81	23.65	47.11	1.48		
Vetch, smooth	10.00	5.42	16.43	23.26	42.18	2.71		
( <i>Vicia sativa</i> )								
Hairy Vetch	11.30	7.90	17.00	25.40	36.10	2.30		
( <i>Vicia villosa</i> )								
White Clover	7.20	4.86	17.07	21.67	47.34	2.21		
( <i>Trifolium repens</i> )								
Cheat	8.41	6.89	8.00	26.45	48.29	1.96		
( <i>Eromus schraderi</i> )								
Kudzu							11.40	39.80 1.20
Austrian winter pea								
Johnson grass	9.54	6.46	6.08	32.80	43.23	1.79		
( <i>Sorghum halapense</i> )								
Soy beans								
Oats	29	10.98	2.98	11.80	9.54	59.74	4.96	5.60
Sorghum (Water free)	45		1.81	5.30	28.30	55.14	5.33	
(All varieties)								
Sorghum Bagasse								
(Water free)			3.24	3.87	34.40	56.87	1.62	
Cow pea vine hay	5							
(Water free)			8.94	16.47	27.21	43.96	3.42	
Sweet potato vines								
(Water free)			10.01	12.26	25.55	47.89	4.29	

NOTE: The above table on "Fodder and Grain Articles," in the main, is a compilation of analytical data from almost every experiment station in the South, for which I acknowledge thanks.

All who believe that Alabama is adapted to cotton growing only, need but study the figures below to be thoroughly convinced that cotton is just one of the many crops for which Alabama soils are especially adapted.

The following interesting and valuable data was furnished by The Transportation Bureau Montgomery Chamber of Commerce, Montgomery, Alabama.

This data should give the greatest encouragement to every farmer in Alabama, as these figures show in a very pronounced way that we can grow an abundance of foodstuffs suitable for making a commercial mixture comparable to any now on the market.

Investigations prove that what is true of Alabama applies to the entire South to a greater or less degree.

"These statistics were compiled from Government Bulletins of the Department of Commerce, Fifteenth Census, 1930, First and Second Series."

In 1930, the state's production was:

Corn .....	35,683,874 Bushels
Velvet Beans .....	716,238 Bushels
Soy Beans .....	41,312 Bushels
Peanuts .....	4,813,352 Bushels
Cow Peas .....	312,597 Bushels
Alfalfa .....	6,050 Tons
Sweet Sorghum Syrup .....	1,356,484 Gallons
Sweet Potatoes .....	6,601,503 Bushels

Glancing at the above figures on these eight major crops it is easy to see how greatly production could be increased by bringing the soil back to its virgin fertility.

No. 3. How can this be done, or how shall the farmer with one horse, mule, or ox, begin, with practically no tools and a soil recognized as literally worn out (non-productive)?

Of all the puzzling problems this one is possibly the most vexing, yet it is simple if just these few points are observed.

1. Read carefully the suggestions for the making of compost; follow them as nearly as possible.

2. Prepare the soil as recommended, if you can, but plow from 5 to 6 inches if you can do no better at the beginning. Pulverize the seed bed thoroughly.

3. Plant crops first that will feed both yourself and your stock; such as, corn cowpeas, sweet potatoes, and by all means have a good garden.

4. Save the manure from every animal on the farm. Every idle moment should be spent raking up and hauling out leaves, muck, etc., from the woods and swamps. Keep the compost pile full, as already suggested.

5. Turn under a covering of weeds, grasses, etc., as often as you can get them.

If the above suggestions are faithfully carried out, within a few years your soil will be brought up to the maximum in fertility and stock raising will become a recognized necessity rather than a mooted question as it is now.

G. W. Carver, Director  
Research and Experiment Station  
Tuskegee Institute, Ala.

\* \* \* \* \*

#### ADDENDA

The large number of letters that have come to my desk, plus the great number of persons who make personal calls in the interest of stock raising, leads me to believe that a few ideal rations will be of distinct value to any one who contemplate going into the business of stock raising, either for dairying or for meat.

I have selected the following information from various Experiment Stations and noted stock men who have successfully fed our Southern grown foodstuffs.

In using any of the following rations it can be readily seen by consulting the table showing the "Composition and Digestibility of Fodder and Grain Articles," how easy it is to make correct substitutions with your own particular foodstuffs, bearing in mind also that the food should be reduced or increased in accordance with the increase or decrease of the live weight of the animal.

# RATIONS FOR MILCH COWS PER 1000 POUNDS LIVE WEIGHT

No. 1—Florida Station		Pounds
Crab grass hay .....		20
Corn stover .....		12
Corn meal .....		3
Cotton seed meal .....		3
No. 2		
Corn meal .....		4
Wheat bran .....		4
Cotton seed meal .....		4
Pea vine hay .....		15
No. 3		
Cow pea hay .....		20
Cotton seed hulls .....		15
Cotton seed meal .....		2
No. 4		
Cow pea hay .....		25
Corn meal .....		4
No. 5		
Sweet potatoes .....		25
Corn fodder .....		10
Cotton seed meal .....		4
Corn meal .....		8
No. 6		
Cow pea hay .....		20
Wheat bran .....		6
Sweet potatoes .....		10
No. 7		
Corn fodder .....		18
Wheat bran .....		4
Cotton seed meal .....		4
Corn meal .....		6
No. 8—North Carolina Station		
Corn silage .....		30
Fodder corn .....		8
Corn meal .....		3
Bran .....		3
Cotton seed meal .....		1
No. 9—Wisconsin Station		
Corn silage .....		30
Hay .....		8
Corn fodder .....		5
Oats .....		4
Pea meal .....		2

No. 10—Canada Station		Pounds
Corn silage .....		40
Hay .....		5
Straw .....		5
Bran .....		4 ½
Oats .....		4 ½

No. 11		
Corn silage .....		45
Hay .....		5
Bran .....		5
Cotton seed meal .....		3

No. 12		
Corn silage .....		30
Hay .....		12
Ground oats .....		10

No. 13—Tuskegee Institute Station		
Corn cob shucks .....		100
Wheat bran .....		200
Cotton seed meal .....		150
Linseed meal .....		80

No. 14		
Velvet beans .....		250
Corn cob shucks .....		100
Wheat bran .....		100
Cotton seed meal .....		200
Linseed meal .....		80

**NOTE: To rations Nos. 13 and 14 minerals are added at the following rates:**

Bone meal .....	2 lbs. per 100 lbs. of grain
Ground limestone .....	1 lb. per 100 lbs. of grain
Common salt .....	1 lb. per 100 lbs. of grain

#### **RATIONS FOR BEEF CATTLE PER 1000 POUNDS LIVE WEIGHT**

No. 1—Florida Station		Pounds
Sweet potatoes .....		25
Corn fodder .....		10
Cotton seed .....		5
Corn meal .....		10

No. 2		
Corn fodder .....		20
Corn and cob meal .....		12
Cow peas (seed) .....		8

### No. 3

	Pounds
Cotton seed hulls .....	25
Corn meal .....	8
Cotton seed meal .....	5

### No. 4

Corn cob meal .....	15
Cow peas .....	10
Crab-grass hay .....	10

### RATIONS FOR HORSES OR MULES AT HARD WORK, PER 1000 POUNDS LIVE WEIGHT

#### No. 1—Florida Station

Cow pea hay .....	15
Oats (grain) .....	13

#### No. 2

Corn fodder .....	10
Oats (Grain) .....	15
Cow peas (grain) .....	4

#### No. 3

Corn fodder .....	13
Corn meal .....	11
Cotton seed meal .....	3